

Biomechanics and Biomaterials Research Center

Hiroki Yokota and Dong Xie

School of Engineering and Technology

Indiana University – Purdue University Indianapolis

Abstract

The Biomechanics and Biomaterials Research Center (BBRC) was founded in 1991 and reactivated in the current form in 2012. Through a collaborative effort from School of Engineering and Technology, School of Dentistry, School of Medicine, School of Science, and School of Health and Rehabilitation Sciences, the Center is to strengthen a national presence in the emerging areas of Mechanobiology, Tissue Engineering, and Biomaterials.

The main aim of BBRC is to enhance our competitiveness for research grants by fostering new research collaborations among established investigators as well as new investigators. In particular, we coordinate efforts to obtain multi-PI research grants from federal agencies including NIH, NSF, NASA, and DOD, as well as center grants, and training programs. Funds at BBRC are used to seed pilot projects, support students, provide shared equipment, and invite seminar speakers for developing multidisciplinary and multi-school research programs.

The following pilot projects were funded (95K in total) in 2013.

- Development of NIAMS P30
- Development of novel oral stable dental resin composite
- FRET-based analysis of mechanotransduction of joint cells
- Stat3 and mitochondrial activity in mechanotransduction
- Synthetic niche for in vitro culture of pancreatic cancer cells
- Mechanical stimulation, fracture resistance and fracture healing in bone
- Integration of spatial and temporal respiratory motion in adaptive proton therapy delivery